## REMARKS

The Office Action dated October 24, 2005 and the Advisory Action dated January 23, 2006 have been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1, 16, 28, and 33 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claims 27 and 30 have been canceled without prejudice or disclaimer. No new matter has been added.

Claims 3-5, 11-15, 18-20, 25, 26, 32, and 36-40 were previously indicated as being allowed. Applicants wish to thank the Examiner for the allowance of these claims.

In view of the above, claims 1, 2, 6-10, 16, 17, 21-24, 28, 29, 31, and 33-35 are respectfully submitted for consideration.

In the final Office Action, claims 1, 2, 6-10, 16, 17, 21-24, 27-29 were rejected under 35 U.S.C. §103(a) as being unpatentable over Giroux (U.S. Pub. No. 2002/0089933) in view of Blanc (U.S. Patent No. 6,606,300). The Office Action took the position that Giroux discloses all of the elements of the claims, with the exception of a plurality of input logic units with each of the input logic units being associated with one of the receive ports and with each of the input logic units being operative to determine whether the associated receive port is saturated. The Office Action then relies upon Blanc as allegedly curing this deficiency in Giroux. Applicants submit that the present claims recite subject matter which is neither disclosed nor suggested by the combination of Giroux and Blanc.

Claim 1, upon which claims 2 and 6-10 are dependent, recites a shared memory packet switching device having a plurality of receive ports for receiving data packets, and a plurality of transmit ports for transmitting data packets. The switching device includes a shared memory providing a shared memory space for temporary storage of data packets received via the receive ports, a plurality of input logic units with each of the input logic units being associated with one of the receive ports, and with each of the input logic units being operative to determine whether the associated receive port is saturated by determining whether a number of packets received via the associated receive port and currently stored in the shared memory exceeds a predetermined drop threshold value, a packet routing control unit communicatively coupled with the input logic units, and being operative to determine a destination one of the transmit ports for each of the received data packets and at least one output logic unit associated with at least one of the transmit ports, the output logic unit being communicatively coupled with the packet routing control unit, and being operative to determine whether the associated transmit port is congested by determining whether a number of packets currently stored in the shared memory that are to be transmitted via the associated transit port exceeds a predetermined congestion threshold value, and also being operative to generate an associated output full signal indicative of whether the associated transmit port is congested. The input logic units is responsive at least in part to each of the output full signals, and is further operative to cause a selected packet received via the associated receive port to be dropped if the associated receive port is currently saturated and the output full signals indicate that

a destination transmit port associated with the selected packet is currently congested. The output logic unit further includes a transmit port control unit responsive to the associated pause signal, and operative to assert back pressure on an associated network link that is communicatively coupled with the associated receive port.

Claim 16, upon which claims 17 and 21-24 are dependent, recites a shared memory packet switching device having a plurality of receive ports for receiving data packets, and a plurality of transmit ports for transmitting data packets. The packet switching device includes a shared memory providing a shared memory space for temporary storage of data packets received via the receive ports, a plurality of input logic units with each of the plurality of input logic units being associated with one of the receive ports, and with each of the input logic units being operative to determine whether the associated receive port is saturated by determining whether a number of packets received via the associated receive port and currently stored in the shared memory exceeds a predetermined drop threshold value, a packet routing control unit communicatively coupled with the at least one input logic unit, and being operative to determine a destination one of the transmit ports for each of the received data packets, the packet routing unit being further operative to generate a plurality of transmit signals each being associated with one of the transmit ports, and to assert a particular one of the transmit signals when a received packet is to be transmitted via the associated transmit port and at least one output logic unit associated with at least one of the transmit ports, the output logic unit being communicatively coupled with the packet routing control unit,

and being operative to determine whether the associated transmit port is congested by determining whether a number of packets currently stored in the shared memory that are to be transmitted via the associated transit port exceeds a predetermined congestion threshold value, and also being operative to generate an associated output full signal indicative of whether the associated transmit port is congested. The packet routing control unit is also responsive to the output full signals, and is operative to generate a plurality of filter signals for indicating that a received packet is destined for a congested one of the transmit ports. The input logic units is further responsive to each of the filter signals, and is further operative to cause a selected packet received via the associated receive port to be dropped if the associated receive port is currently saturated and the filter signals indicate that a destination transmit port associated with the selected packet is currently congested. The output logic unit further includes a transmit port control unit responsive to the associated pause signal, and operative to assert back pressure on an associated network link that is communicatively coupled with the associated receive port.

Therefore, certain embodiments of the present invention enable an uncongested transmit port of the device to not starve as a result of flow control functions initiated at a saturated receive port as a result of heavy traffic through the device between the saturated receive port and a plurality of transmit ports including the uncongested transmit port and other transmit ports, some of which may be congested.

It is respectfully submitted that Giroux and Blanc, taken either individually or in combination, fail to disclose or suggest all of the elements of the presently pending claims and, therefore, fail to provide the advantages and features discussed above.

Giroux discloses a congestion management system and method in a multi-port shared memory switch in a communications network. Giroux describes a switch receiving data from various sources and temporarily storing the data in a shared memory buffer. The switch also includes a local congestion monitoring means for setting and monitoring queue length thresholds for each output queue. When the queue depth for any queue exceeds a queue length threshold, a congestion control mechanism is implemented to limit incoming data traffic destined for that queue. The Office Action acknowledges that Giroux fails to disclose or suggest determining whether the associated receive port is currently saturated.

Blanc discloses a flow control process for a switching system which includes at least one switch core connected through serial communication links to remote and distributed Protocol Adapters or Protocol Engines through Switch Core Access Layer (SCAL) elements. For each input port i, the SCAL element includes a receive Protocol Interface (PINT) for the handling of the particular protocol corresponding to the adapter being assigned the input port i and first serializing means for providing the attachment to the switch core by means of first serial communication links. When the cells are received in the switch core, they are deserialized by means of first deserializing means. At each output port, the cells are serialized by means of second serializing means and then

transmitted via a second serial communication link to the appropriate SCAL. When the SCAL receives the cells, they are deserialized by second deserializing means and then transmitted to the Protocol Interface (PINT) circuit for permitting the attachment of the Protocol Adapter.

With respect to the rejection of claims 27-29, Applicants note that claim 27 has been canceled. In addition, claim 28, upon which claim 29 is dependent, has been amended such that it is now dependent upon claim 32, which was previously allowed. As such, Applicants submit that claims 28 and 29 are in condition for allowance.

With respect to the rejection of claims 1, 2, 6-10, 16, 17, and 21-24, Applicants submit that Giroux and Blanc, whether considered individually or combined, fail to disclose or suggest all of the elements of the claims. For example, Giroux and Blanc fail to disclose or suggest that "said output logic unit further includes a transmit port control unit responsive to said associated pause signal, and operative to assert back pressure on an associated network link that is communicatively coupled with said associated receive port," as recited in claims 1 and 16.

According to certain embodiments of the present invention, the output logic unit includes a transmit port control unit. As recited in the present claims, and supported by the specification, "the transmit port control unit 242 is operative to assert backpressure by generating a PAUSE message to be provided to the associated transmit queue 170 when the associated PAUSE[N] signal received at its port 244 is asserted" (Specification, page

11, lines 10-12). Applicants submit that Giroux and Blanc fail to disclose or suggest at least this element of the claims.

As discussed above, Giroux, on the other hand, only discloses a local congestion monitoring means for setting and monitoring queue length thresholds for each output queue. According to Giroux, when the queue depth for any queue exceeds a queue length threshold, a congestion control mechanism is implemented to limit incoming data traffic destined for that queue. Therefore, Giroux fails to disclose or suggest that "said output logic unit further includes a transmit port control unit responsive to said associated pause signal, and operative to assert back pressure on an associated network link that is communicatively coupled with said associated receive port," as recited in claims 1 and 16. Blanc also fails to disclose or suggest such a limitation.

Therefore, for at least the reasons discussed above, Applicants respectfully submit that the combination of Giroux and Blanc fails to disclose or suggest all of the elements of claims 1 and 16. As such, Applicants respectfully request that the rejection of claims 1 and 16 be withdrawn.

Claims 2, 6-10, 17, and 21-24 are dependent upon claims 1, and 16, respectively. Applicants submit that these claims are not disclosed or suggested by the teachings of the cited references at least for the reasons given above, and because the dependent claims recite additional patentable subject matter. Additionally, claims 2, 6-10, 17, 21-24 and 28-29 should be allowed for at least their dependence upon claims 1, 16, and 27, and for

the specific limitations recited therein. Thus, applicants respectfully request that the obviousness rejection of claims 1, 2, 6-10, 16, 17, 21-24 and 27-29 be withdrawn.

Claims 30, 31 and 33-35 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Giroux in view of Blanc, and further in view of Basso (U.S. Patent No. 5,787,071). The Office Action took the position that Giroux and Blanc taught all of the elements of these claims, with the exception of asserting a backpressure signal when a backpressure threshold has been exceeded and the lines are bi-directional. Basso was cited as teaching these elements of the claims. The rejection is respectfully traversed for the following reasons.

Applicants submit that claims 30, 31 and 33-35 depend directly or indirectly from claim 32. As mentioned above, claim 32 was previously indicated as being allowed. Applicants submit that claims 30, 31 and 33-35 recite the patentable features of claim 32. Furthermore, claims 30, 31, and 33-35 should be allowed for at least their dependence upon claim 32, and for the specific limitations recited therein.

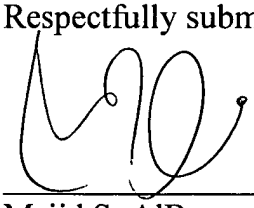
Applicants respectfully submit that the cited prior art fails to disclose or suggest all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1-26, 28, 29, 31-40 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by

telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosures: Request for Continued Examination